

### **AMENDMENTS TO THE CLAIMS**

#### **In the Claims:**

The following listing of claims replaces all prior versions and listings of claims in the application.

#### **Listing of Claims:**

1-69. (Canceled).

70. (Currently amended) A system for fixing ~~and processing~~ a tissue sample, comprising:

a reaction chamber~~[[;]]~~ ~~including~~ a solution in the reaction chamber, wherein the solution is a solution for fixing ~~or processing~~ a tissue sample ~~placed therein~~;

a tissue sample immersed in the solution;

an ultrasound transducer, immersed in the solution, ~~to irradiate the tissue sample with ultrasound energy~~;

an ultrasound generator, ~~coupled to the ultrasound transducer, wherein the ultrasound generator controls to generate the ultrasound transducer energy~~;

~~at least one~~ a first sensor, immersed in the solution, ~~to monitor at least one of a physical parameter of the tissue sample and the ultrasound energy~~; and

a central processing unit, ~~coupled to the ultrasound generator and the sensor, responsive to a first signal from the first sensor wherein the central processing unit controls to control the ultrasound generator and adjusts by adjusting at least one of a the frequency [[or]] and an intensity of the ultrasound energy, in response to a said first signal received from the first sensor, wherein the system causes to fix the tissue sample in the solution to become fixed with no or minimal damage to the tissue sample.~~

71. (Canceled).

72. (Currently amended) The system of claim 70, wherein ~~the first~~ said at least one sensor detects a parameter of the sample selected from the group consisting of[: a]] temperature, [[a]] size, [[a]] tissue type, and [[a]] tissue density.

73. (Currently amended) The system of claim 70, ~~further comprising a second wherein~~ said at least one sensor is selected from the group consisting of[::] an ultrasound sensor, and an infrared temperature sensor.

74. (Currently amended) The system of claim 70, wherein ~~the first~~ said at least one sensor measures a frequency or an intensity of said ultrasound.

75. (Currently amended) The system of claim 70 wherein ~~the first~~ said at least one sensor produces signals which are processed by the central processing unit.

76. (Canceled).

77. (Currently amended) The system of claim 70 wherein ~~the~~ said transducer generates ultrasound of a frequency of at least 100 KHz.

78. (Currently amended) The system of claim 77 wherein ~~the~~ said transducer generates ultrasound of a single frequency or of multiple frequencies in the range 100 KHz to 50 MHZ.

79. (Currently amended) The system of claim 70 wherein ~~the~~ said ultrasound transducer produces ultrasound of a power in the range of 0.01-200 W/cm<sup>2</sup>.

80-91 (Canceled).

92. (Currently amended) The system of claim 70 wherein ~~the~~ said solution is a solution of 10% formalin.

93. (Currently amended) The system of claim 70 wherein ~~the~~ said solution is alcohol to dehydrate the tissue sample.

94. (Currently amended) The system of claim 70 wherein ~~the~~ said solution is xylene.

95. (Currently amended) The system of claim 70 wherein ~~the~~ said solution is paraffin.

96. (Previously presented) The system of claim 70 further comprising a first pump and a second pump, wherein the first pump pumps a second solution into the reaction chamber and the second pump pumps a first solution out of the reaction chamber.

97. (Canceled).

98. (Currently amended) A system for ~~processing~~ fixing tissue samples, comprising:  
a reaction chamber~~[[;]]~~ including a solution in the reaction chamber, wherein the solution is a solution for fixing or processing a tissue sample placed therein;  
~~a tissue sample immersed in the solution;~~

an ultrasound transducer, immersed in the solution, to irradiate the tissue sample with ultrasound energy ~~wherein the transducer generates ultrasound of~~ having a frequency of at least 100 KHz and a power in the range of 0.01-200 W/cm<sup>2</sup>;

an ultrasound generator, coupled to the ultrasound transducer, ~~wherein the ultrasound generator controls~~ to generate the ultrasound transducer energy;

at least one a first sensor, immersed in the solution, to monitor at least one of a physical parameter of the tissue sample and the ultrasound energy; and

a central processing unit, coupled to the ultrasound generator and the sensor, ~~responsive to a first signal from the first sensor wherein the central processing unit controls to~~ control the ultrasound generator ~~and adjusts by adjusting at least one of a the frequency [[or]]~~ and an intensity of the ultrasound energy, in response to a said first signal received from the first sensor, ~~wherein the system causes to fix the tissue sample in the solution to become fixed with no or minimal damage to the tissue sample.~~

99. (Currently amended) The system of claim 98, wherein the said transducer generates ultrasound of a single frequency or of multiple frequencies in the range 100 KHz to 50 MHZ.

100. (Currently amended) The system of claim 99, wherein ~~the first said at least one~~ sensor detects a parameter of the sample selected from the group consisting of~~[[; a]]~~ temperature, ~~[[a]]~~ size, ~~[[a]]~~ tissue type, and ~~[[a]]~~ tissue density.

101. (Currently amended) The system of claim 99, ~~further comprising a second~~  
wherein said at least one sensor is selected from the group consisting of[[:] an ultrasound sensor, and an infrared temperature sensor.

102. (Currently amended) The system of claim 99, wherein ~~the first~~ said at least one sensor measures a frequency or an intensity of said ultrasound.

103. (Currently amended) The system of claim 99, wherein ~~the first~~ said at least one sensor produces signals which are processed by the central processing unit.

104. (Previously presented) The system of claim 99 further comprising a first pump and a second pump, wherein the first pump pumps a second solution into the reaction chamber and the second pump pumps a first solution out of the reaction chamber.